

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 78-1

NPDES No. CA0037800

WASTE DISCHARGE REQUIREMENTS FOR:

SONOMA VALLEY COUNTY SANITATION DISTRICT
SONOMA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region,
(hereinafter the Board) finds that:

1. Sonoma Valley County Sanitation District (hereinafter district) by application dated June 3, 1976, has applied for new waste discharge requirements and a permit to discharge wastes under the National Pollutant Discharge Elimination System. The district proposes in its facilities plan to change the current method of waste disposal from discharge to Schell Slough to total reclamation of all treated effluent by irrigation of agricultural lands. This will be accomplished by 1981 upon completion of the reconstruction and modification of the existing treatment plant and the additional construction of reclaimed wastewater transmission, distribution, and storage facilities.
2. The district presently discharges about 2.0 million gallons per day (mgd) of secondary treated municipal effluent into Schell Slough via an outfall at latitude 38° 14' 15" north, longitude 122° 25' 50" west. During wet weather indeterminate amounts of sewage are bypassed around the treatment plant to the Schell Slough outfall when the influent flow exceeds 4 mgd, and some bypassing occurs from the collection system to Sonoma Creek during periods of heavy rainfall. The permit application and self-monitoring reports described the existing discharge of wastes to Schell Slough as:

a. Effluent Quantity

1. Average Flow: 2.0 mgd
2. Design Flow: 2.1 mgd (at Federal definition of secondary treatment)
3. 1976 average BOD reduction from influent was 90%; suspended matter 89%.

b. Effluent Quality; dry weather month (August, 1977; average monthly flow 1.09 mgd)

<u>Constituent</u>	<u>Milligrams per liter</u> (mg/L)	<u>Pounds per day</u> (lbs/day)
BOD - 5 day	22	200
Total Suspended Matter	23	216
Chlorine residual	>0.0	-

- c. Effluent Quality; wet weather month (February 1975; average monthly flow 5.97 mgd)

<u>Constituent</u>	<u>milligrams per liter</u> (mg/l)	<u>pounds per day</u> (lbs/day)
BOD - 5 day	29	263
Total Suspended Matter	35	318
Chlorine residual	>0.0	-

3. During the plant reconstruction the following discharges are proposed:

- a. Waste 001 consists of approximately 2.1 mgd of dry weather secondary treated effluent and up to 4 mgd of wet weather less-than-secondary treated effluent discharged through an outfall to Schell Slough, a water of the United States.
- b. Waste 002 consists of an indeterminate amount of waste which bypasses around the treatment plant and is discharged through the Schell Slough outfall when the influent exceeds the present treatment plant's hydraulic capacity of 4.0 mgd.
- c. Waste 003 consists of indeterminate amounts of wastes bypassed or overflowed from the collection system at numerous points to Sonoma Creek during periods of heavy rainfall.

4. A Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) was adopted by the Board in April 1975. The Basin Plan includes water quality objectives for Schell Slough. The Basin Plan prohibits discharges to non-tidal waters, dead-end sloughs, and waters where 10:1 initial dilution is not provided. However, it allows the Board to consider exceptions to these prohibitions when the discharge is a part of a reclamation project. In consideration of the district's proposal for reclamation of wastewater with discharge of treated effluent to occur only during the 20-year wet season, the Board hereby grants such an exception.

5. The beneficial uses of Schell Slough and its tributaries are:

- a. Recreation
- b. Esthetic enjoyment
- c. Habitat for fish, waterfowl and other aquatic wildlife

6. The district's discharge is presently governed by waste discharge requirements under Board Order No. 74-99.

7. The district has prepared a final Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (Public Resources Code Section 2100 et. seq.).

8. The project as approved by the district could have the following significant effect on the environment: Secondary effluent could overflow the storage reservoir into Sonoma Creek.

9. Discharge Prohibition A.5 mitigates the adverse environmental impacts of the overflow described in Finding 8 and therefore, compliance with waste discharge requirements would eliminate the significant effects on the environment noted above.
10. The district and interested agencies and persons have been notified of the Board's intent to prescribe requirements for the existing and proposed discharges and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations.
11. The Board, in a public meeting, heard and considered all comments pertaining to the discharges.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provisions of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the district shall comply with the following:

A. Discharge Prohibitions

1. The discharge of Waste 001 is prohibited. (Section B contain interim effluent limitations.)
2. The discharge of Waste 002 is prohibited.
3. The discharge of Waste 003 is prohibited.
4. Prior to total reclamation the monthly average daily dry weather flow of waste to the treatment plant shall not exceed 2.1 mgd.
5. Overflow from reservoirs to be constructed for storing secondary treated waste to be used for irrigation is prohibited except during the wettest season occurring once in twenty years. In this event, the amount and frequency of overflow shall be minimized to the extent feasible.

B. Effluent Limitations

Prior to achieving full compliance with Discharge Prohibition A.1., the following interim effluent limits shall apply to Waste 001:

1. During any month from May through September:

<u>Constituent</u>	<u>Units</u>	<u>30 day Average</u>	<u>7 day Average</u>	<u>Daily Maximum</u>
Biochemical Oxygen Demand - 5 day	mg/l	30	45	60
	kg/day	240	360	480
	lb/day	525	790	1050
Total Suspended Solids	mg/l	30	45	60
	kg/day	240	360	480
	lb/day	525	790	1050

The arithmetic mean of values for BOD and Suspended Solids, by weight, in effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of respective values, by weight, for influent samples collected at approximately the same time during the same period (i.e. 85% removal).

2. During any month from October thru April:

<u>Constituent</u>	<u>Units</u>	<u>30 day Average</u>	<u>Daily Maximum</u>
Biochemical Oxygen Demand, 5-day	kg/day	770	1315
	lb/day	1695	2900
	mg/l	35	60
Total Suspended Solids	kg/day	1100	1650
	lb/day	2420	3630
	mg/l	50	75

3. At all times of the year:

<u>Constituent</u>	<u>Units</u>	<u>30 day Average</u>	<u>7 day Average</u>	<u>Daily Maximum</u>	<u>Instantaneous Maximum</u>
a. Oil & Grease	kg/day	155	-	305	-
	lb/day	335	-	670	-
	mg/l	10	-	20	-

b. Chlorine Residual (mg/l): 0.0 Instantaneous Maximum.

c. Settleable matter (ml/l/hr): 0.1 Monthly Average.

d. The total coliform bacteria for a median of five consecutive effluent samples shall not exceed 240 per 100 milliliters. Any single sample shall not exceed a most probable number (MPN) of 10,000 total coliform bacteria when verified by a repeat sample taken within 48 hours.

e. The pH after dechlorination shall be from 6.5 to 8.5.

f. Any representative set of samples as discharged shall meet the following limit of quality:

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The survival of test fishes in 96 hour bioassays of the effluent shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 consecutive samples.

g. Representative samples of waste as discharged shall not contain constituents in excess of the following limits more than the percentage indicated: 1/

<u>Constituent</u>	<u>Unit of Measurement</u>	<u>50% of time</u>	<u>10% of time</u>
Arsenic	mg/l (kg/day)	0.01(0.113)	0.02(0.227)
Cadmium	mg/l (kg/day)	0.02(0.227)	0.03(0.340)
Total Chromium	mg/l (kg/day)	0.005(0.057)	0.01(0.113)
Copper	mg/l (kg/day)	0.2(2.27)	0.3(3.40)
Lead	mg/l (kg/day)	0.1(1.13)	0.2(2.26)
Mercury	mg/l (kg/day)	0.001(0.011)	0.002(0.023)
Nickel	mg/l (kg/day)	0.1(1.13)	0.2(2.27)
Silver	mg/l (kg/day)	0.02(0.227)	0.04(0.454)
Zinc	mg/l (kg/day)	0.3(3.40)	0.5(5.67)
Cyanide	mg/l (kg/day)	0.1(1.13)	0.2(2.26)
Phenolic Compounds	mg/l (kg/day)	0.5(5.67)	1.0(11.35)
Total Identifiable Chlorinated Hydrocarbons	mg/l <u>2/</u>	0.002(0.023)	0.004(0.045)

1/These limits are intended to be achieved through secondary treatment, source control and application of pretreatment standards.

2/Total Identifiable Chlorinated Hydrocarbons shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, polychlorinated biphenyls, and other identifiable chlorinated hydrocarbons.

C. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place.
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended or deposited oil or other products of petroleum origin;
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. Prior to achievement of total reclamation in lieu of secondary treatment as required by the Federal Water Pollution Control Act the following interim limitations shall apply:

- a. Waste No. 001 shall not cause waters of the United States to exceed the following limits of quality at any point within one foot of the water surface:

Dissolved oxygen	5.0 mg/l, minimum in tidal Schell Slough and Schell Creek
	5.0 mg/l, minimum in Steamboat Slough, Railroad Slough, Third Napa Slough, and Second Napa Slough
	6.0 mg/l in Sonoma Creek
b. Dissolved sulfide	0.1 mg/l maximum
c. pH	Variation from natural ambient pH by more than 0.2 ph units.

D. Provisions

1. The requirements prescribed by this Order supersede the requirements prescribed by Order No. 74-99 adopted by this Board on September 17, 1974. Order No. 74-99 is hereby rescinded.

2. The discharger shall comply with the following time schedules to assure compliance with specifications of this Order:

- a. Compliance with Discharge Prohibition A.1., A.2, and A.3:

<u>Task</u>	<u>Compliance Date</u>
Full compliance	July 1, 1977

- b. Compliance with Effluent Limitations B.3.b. and B.3.f.:

<u>Task</u>	<u>Compliance Date</u>	<u>Report of Compliance</u>
Complete plans and specifications for facilities necessary to achieve compliance	January 18, 1978	February 1, 1978
Submit Status Report	April 1, 1978	
Full Compliance	October 1, 1978	October 15, 1978

- c. The discharger shall comply with all other prohibitions, effluent and receiving water limitations, and provisions of this Order immediately upon adoption.

3. The discharger shall continue to enforce a local source control program and document to this Board satisfactory compliance with the State Water Resources Control Board's "Guidelines for Determining the Effectiveness of Local Source Control Programs."

4. The discharger shall comply with the attached Self-Monitoring Program as ordered by the Executive Officer.
5. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions," dated April 1977.
6. The discharger shall review and update annually its contingency plan as required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
7. This Order expires January 1, 1983. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9, of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection.

I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 17, 1978.

FRED H. DIERKER
Executive Officer

Attachments:

Standard Provisions, Reporting Requirements,
and Definitions, dated April 1977
Self-Monitoring Program

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. Influent and Intake

<u>Station</u>	<u>Description</u>
A-001	At any point in the treatment facilities headworks at which all waste tributary to the system is present and preceding any phase of treatment.

B. Effluent

<u>Station</u>	<u>Description</u>
E-001	At any point in the outfall to Schell Slough between the dechlorination facilities and point of discharge.
E-001-D	At any point in the disinfection facilities for Waste 001 at which point adequate contact with the disinfectant is assured. (May be the same as E-001.)

C. Receiving Waters

<u>Station</u>	<u>Description</u>
C-1	At a point in Schell Slough located at the tide gates upstream from the point of discharge.
C-2	At a point in Schell Slough located five hundred feet (500) upstream from C-3.
C-3	At a point in Schell Slough located within twenty (20) feet downstream from the point of discharge.
C-4	At a point in Schell Slough located at a point midway between its confluence with Steamboat Slough and the point of discharge.
C-5	At a point in Steamboat Slough located at its confluence with Schell Slough.
C-6	At a point in Third Napa Slough located at its confluence with Steamboat Slough.
C-7	At a point in Second Napa Slough located at its confluence with Third Napa Slough.
C-8	At a point in Sonoma Creek located at its confluence with Second Napa Slough.

D. Land Observations

<u>Station</u>	<u>Description</u>
P-1 thru P-"n"	Located at the corners and midpoints of the perimeter fenceline surrounding the treatment facilities. (A sketch showing the locations of these stations will accompany each report.)

E. Sediments

<u>Station</u>	<u>Description</u>
B-1	At a point in Schell Slough located fifty (50) feet downstream from C-1.
B-2	At a point in Schell Slough located at C-3.
B-3	At a point in Schell Slough located at C-4.

F. Overflows and Bypasses

<u>Station</u>	<u>Description</u>
OV-1 thru OV-"n"	Bypass or overflows from manholes, pump stations or collection system.
	Note: Initial SMP report to include map and description of each known bypass or overflow location.
Reporting -	Shall be submitted monthly and include date, time, and period of each overflow or bypass.

II. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The schedule of sampling, measurements and analysis shall be that given as Table I. This schedule shall apply in the frequency listed at all times during the year.

III. MODIFICATION OF PART "A"

Exclude: Paragraphs: C.3, and C.5.c.

I, Fred H. Dierker, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. 81-45.
2. Shall become effective immediately.

3. Has been ordered by the Executive Officer on _____.
4. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

FRED H. DIERKER
Executive Officer

Attachment:
Table I

Effective Date 10-21-81

TABLE I
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001		E-001		E-001-D				All C		All P	All B	All OV
TYPE OF SAMPLE	C-24	Cont	G	C-24	G	C-24			G		O	BS	O
Flow Rate (mgd)		D											E
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	2/W			2/W									
Chlorine Residual & Dosage (mg/l & kg/day)			2/H or Cont		D								
Settleable Matter (ml/1-hr. & cu. ft./day)			D										
Total Suspended Matter (mg/l & kg/day)	2/W			2/W									
Oil & Grease 1/ (mg/l & kg/day)	(G) M		2W						Q				
Coliform (Total) (MPN/100 ml) per req't					3/W				M				
Fish Toxicity, 96-hr. % Survival in undiluted waste						M							
Ammonia Nitrogen (mg/l & kg/day)				M					Q				
Nitrate Nitrogen (mg/l & kg/day)				M					Q				
Nitrite Nitrogen (mg/l & kg/day)				M					Q				
Total Organic Nitrogen (mg/l & kg/day)				M					Q				
Total Phosphate (mg/l & kg/day)				M					Q				
Turbidity (Jackson Turbidity Units)													
pH (units)			D						M				
Dissolved Oxygen (mg/l and % Saturation)			D						M				
Temperature (°C)			D						M				
Apparent Color (visual)			2W						M				
Secchi Disc (inches)									M				
Sulfides (if DO < 5.0 mg/l) Total & Dissolved (mg/l)			D						M				
Arsenic (mg/l & kg/day)				3M									
Cadmium (mg/l & kg/day)				3M									
Chromium, Total (mg/l & kg/day)				3M									
Copper (mg/l & kg/day)				3M									
Cyanide (mg/l & kg/day)				3M									
Silver (mg/l & kg/day)				3M									
Lead (mg/l & kg/day)				3M									

TABLE I (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001		E-001		E-001D				All C		All P	All B	All OV
TYPE OF SAMPLE	C-24	Cont	G	C-24	G	C-24			G		O	BS	OV
Mercury (mg/l & kg/day)				3M									
Nickel (mg/l & kg/day)				3M									
Zinc (mg/l & kg/day)				3M									
PHENOLIC COMPOUNDS (mg/l & kg/day)				3M									
All Applicable Standard Observations			D						M		2/W		E
Bottom Sediment Analyses and Observations												2/Y	
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)				3M									
Rainfall depth and Dura- tion per overflow event													E
									Q				

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
 C-24 = composite sample - 24-hour
 C-X = composite sample - X hours
 (used when discharge does not
 continue for 24-hour period)
 Cont = continuous sampling
 DI = depth-integrated sample
 BS = bottom sediment sample
 O = observation

TYPES OF STATIONS

I = intake and/or water supply stations
 A = treatment facility influent stations
 E = waste effluent stations
 C = receiving water stations
 P = treatment facilities perimeter stations
 L = basin and/or pond levee stations
 B = bottom sediment stations
 G = groundwater stations
 OV = overflow and bypasses

FREQUENCY OF SAMPLING

E = each occurrence
 H = once each hour
 D = once each day
 W = once each week
 M = once each month
 Y = once each year

2/H = twice per hour
 2/W = 2 days per week
 5/W = 5 days per week
 2/M = 2 days per month
 2/Y = once in April and
 once in October
 Q = quarterly, once in
 March, June, Sept.
 and December

2H = every 2 hours
 2D = every 2 days
 2W = every 2 weeks
 3M = every 3 months
 Cont = continuous

Samples taken for oil and grease analysis at sample station A-001 shall be grab samples, at a frequency of monthly. Those at station E-001 shall be taken every two weeks.

Oil and grease sampling shall consist of 3 grab samples taken at 8-hour intervals during the sampling day, with each grab being collected in a glass container and analyzed separately. Results shall be expressed as a weighted average of the 3 values, based upon the instantaneous flow rates occurring at the time of each grab sample.

If the plant is not staffed 24 hours per day or if the discharge ~~does not~~ occur continuously, then the three grab samples may be taken at approximately equal intervals during the period that the plant is staffed or during the period that discharge is made.

In the event that sampling for oil and grease once every two weeks or less frequently shows an apparent violation of the waste discharge permit 30-day average limitation (considering the results of one or two day's sampling as a 30-day average), then the sampling frequency shall be increased to weekly, so that a true 30-day average can be computed and compliance can be determined. This provision does not apply to cases in which effluent oil and grease limitations are not currently in effect (under a time schedule for compliance). I, Fred H. Dierker, Executive Officer, hereby certify that the foregoing Self-Monitoring Program addendum:

1. Does not affect any portion of the discharger's current Self-Monitoring Program other than the oil and grease sampling specifications at the stations named herein.
2. Has been ordered by the Executive Officer on June 7, 1976, and becomes effective immediately.

FRED H. DIERKER
Executive Officer

BOTTOM SEDIMENT SAMPLING AND REPORTING GUIDELINES
SEPTEMBER 1974

For macroinvertebrate samples the following equipment and procedures shall be observed:

1. The benthic grab sampler employed shall be one of the following: Ponar, Peterson, Smith-McIntyre or 12 x 12 Ekman (when all sampling stations are in shallow water and sediment composition is ooze throughout sampling area). A core sampler may be employed if special conditions warrant but approval is necessary from the Regional Board.
2. Each benthic grab (replicate) shall be reasonably uniform; that is, 6 to 8 liters of sediment per grab. In the field, each grab sample shall be screened using a 30 mesh sieve and preserved in 5% formalin. Sediment characteristics shall be recorded for each grab. Pertinent collection data shall be placed on internal and external labels for all grabs preserved.
3. In the laboratory, all grabs preserved in the field shall be transferred into 70% ethanol within a week. When large numbers of organisms are present, subsampling may be employed. The sample should be thoroughly mixed and distributed over a shallow pan. A divider (i.e., equal quarters) is placed in the pan. The aliquot to be used, regardless of the number of organisms, should never be smaller than one-quarter of the grab sample. Generally, it will be necessary to count all of the organisms in no less than three liters of the sediment collected in each grab sample. When subsampling is not employed during the first sampling period of the year, because of the low number of organisms in the benthos, then subsampling should not be conducted in the other sampling periods for that year if at all possible. If very large numbers of organisms are present in future samples, then subsampling may be conducted, but the subsample should never be smaller than one-half of the grab sample. The methodology used should be consistent and should be guided by expert professional judgment. That part of the sample not selected for sorting shall be saved for future reference as well as those specimens sorted. Aliquot sampling, although not the most desirable alternative, is preferable to compositing all grab samples. The subsampling prescribed should provide for some reduced costs to the discharger.

Reporting Procedures for Benthic Macroinvertebrates

All Reports shall include the following:

1. Number of invertebrates per square meter and per liter of sediment of each grab sample and the mean number of invertebrates per square meter and per liter of sediment per station. The actual number of individuals counted in each grab sample and the actual volume of sediment collected in the grab sample shall be listed.
2. Identification of polychaetes, amphipods, and molluscs to species and enumeration of each species for each grab sample.

3. For each station, provide the mean number of individuals per square meter for each discernible species* obtained from the individual grab samples.
4. For each station, provide the range in numbers of individuals for each discernible species* obtained from the separate grab samples.
5. List total oligochaetes per square meter and per liter of sediment for each grab sample and the mean numbers for each station.

Annual Reports shall include in addition to the above:

1. Discussion of presence or absence and relative abundance of pollutant tolerant and/or intolerant species.
2. Analysis and discussion on impact of discharge on benthic community in vicinity of outfall.
3. Graphical presentation of results should accompany the discussion of (1) and (2) above.
4. Discharger shall be required to submit (2) two copies of the Annual Summary to the Regional Board.

*Discernible species means a species identified or recognized as such in the following major groups: polychaetes, amphipods and molluscs.